

Title V

Model General Permit Template

SERIES 1 FLARES

Template # SJV-FL-1-0

nonassisted, air-assisted, or steam-assisted elevated open flares

actual emissions less than 20 tons VOC per year

used to comply with NSPS VOC control requirements for petroleum liquid
storage tanks, loading racks, or gas plant fugitive VOC
equipment leaks

This template is designed to streamline the Title V permitting process for flares meeting the above qualifications. Applicants for Title V permits choosing to use this template will only have to complete the enclosed template qualification form and submit it with their Title V application.

San Joaquin Valley Unified Air Pollution Control District

**Final
Title V Model General Permit Template
Series 1 Flares**

Template No: SJV- FL-1-0

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FINAL DECISION DATE:

SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT

TITLE V GENERAL PERMIT TEMPLATE SJV-FL-1-0

ENGINEERING EVALUATION

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I. Purpose

The purpose of the proposed template is to streamline the Title V permitting process by identifying the federally applicable requirements for flares and to establish permit conditions which will ensure compliance with such requirements. These conditions will be incorporated into the Title V permit of any facility choosing to make use of the template.

II. Template Applicability

The template applies to any nonassisted, air-assisted or steam-assisted elevated open flare which:

is used to comply with NSPS VOC control requirements for petroleum liquid storage tanks, loading racks, or gas plant fugitive VOC equipment leaks, and
has actual emissions less than 20 tons VOC per year.

The applicability of this template can best be established by answering the questions on the Template Qualification Form attached as Appendix B.

III. Applicable Requirements

Units may be subject to “federally enforceable “ requirements as well as requirements that are enforceable by the “District-only.” Federally enforceable requirements will be enforceable by the EPA, the District, and the public through Title V permit conditions identified as federally enforceable. District-only requirements represent local or state regulations for which the EPA has no direct enforcement authority. The final Title V permits issued by the District will contain both federally enforceable and District-only requirements.

District-only requirements are not addressed in this template except for those used in streamlining of multiple requirements (see discussion in section IV). District-only requirements used in streamlining of multiple requirements will become federally enforceable. Table 1, Applicable Requirements, does not necessarily include all federally enforceable requirements that apply to flares qualifying to use this template, and it is the source’s responsibility to determine any and all applicable requirements to which the source is subject. Generally, requirements not

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addressed by this template are those that require a source specific analysis, or are covered by other templates.

Table 1. Applicable Requirements

Rule Category	Rule/Regulation	Citation	Description
A	NSPS Subpart A	60.18 (b-f)	General control device requirements
A	SJVUAPCD Reg. II	2520, 9.4.2, 9.5.2, 13.2	Monitoring Requirements, Recordkeeping Requirements, and Permit Shields
B	SJVUAPCD Reg. II	2201	New Source Review Rule
B	SJVUAPCD Reg. II	2520	Federally Mandated Operating Permits
C	SJVUAPCD Reg. I	1080	Continuous Emissions Monitoring
C	SJVUAPCD Reg. I	1081	Source Sampling
C	SJVUAPCD Reg. IV	4101	Visible Emissions
C	SJVUAPCD Reg. IV	4201	Particulate Matter Concentration
C	SJVUAPCD Reg. IV	4301	Fuel Burning Equipment

Category “A” rules contain requirements that are directly applicable to the qualifying units; compliance with these applicable requirements will be demonstrated in this engineering evaluation and assured by the template permit conditions. In section IV, Compliance, the federally-enforceable requirements from category “A” rules are listed with a discussion of how compliance with these requirements is achieved.

Category “B” rules contain federally enforceable requirements (aside from those listed as category A) that were not addressed in this template. These may not be all of the federally enforceable requirements for this unit. Requirements from these rules must be addressed by the applicant outside of this template within the Title V application Compliance Plan form (TVFORM-004). Category “B” listing is included in this table as an informational item to assist applicants in this effort.

Category “C” rules contain requirements which have been determined not to be applicable to qualifying units. A permit shield is proposed for the category “C” rules. An explanation of the determination of non-applicability of category “C” rules is included in section V, Permit Shield.

IV. Compliance

This section contains a discussion of how compliance is assured with each requirement addressed in this template.

40 CFR 60 Subpart A

NSPS Subpart A section 60.18 (c)(1) requires flares to be designed and to operate with no visible emissions, except for periods not to exceed 5 minutes during any 2 consecutive hours. Section 60.18 (f)(1) also requires that visible emissions

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determinations be made using EPA Method 22. Compliance with these requirements assured by template permit conditions #1 - 3.

Sections 60.18 (c)(3), 60.18 (c)(4)(i-iii), 60.18 (c)(5) & 60.18 (f)(3-6) set a limit on the net heating value of the flared gas to be no less than 200 Btu/scf for nonassisted flares and 300 Btu/scf for air-assisted or steam-assisted flares. The method to be used to calculate net heating value is specified. See template permit conditions #7 and #8.

Section (c)(4)(i-iii) requires the flare gas exit velocity to conform to the following limits:

<u>Flare Type</u>	<u>Flare Gas Min. Btu/scf</u>	<u>Exit Velocity (ft/sec)</u>	
		<u>Min</u>	<u>Max</u>
Air-assisted	300	----	< 55
Nonassisted	200	----	< 60
Steam-assisted	300	----	< 60
Nonassisted	>1,000	60	<400
Steam-assisted	>1,000	60	<400

Compliance with these operating limits will be ensured by template permit conditions #9 - 13.

Sections 60.18 (c)(2), 60.18 (e), and 60.18 (f)(2)

These sections of Subpart A require that flares be operated with a flame present at all times when emissions may be vented to them. The presence of the pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the flame presence. Compliance with these requirements will be assured by template permit condition #14.

District Rule 2520, 9.4.2 and 9.5.2

Section 9.4.2 requires that periodic monitoring be performed if none is associated a federally enforceable requirement to assure compliance. Periodic monitoring required by this section is supported by template permit conditions #3, #5 and #6. These conditions require additional visible emissions monitoring by the source, limit VOC emissions to 20 tons per year for a unit, and require the flare be operated according to manufacturer's specifications to assure compliance with 40CFR 60.18.

Section 9.5.2 requires all records be maintained for at least five years. Template permit condition #4 will assure that all records be maintained for at least five years.

V. Permit Shield

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A permit shield legally protects a facility from enforcement of the shielded regulations when a source is in compliance with the terms and conditions of the Title V permit (District Rule 2520, 13.2). Compliance with the terms and conditions of the Title V permit is considered compliance with all applicable requirements upon which those conditions are based.

40 CFR 60.18, except for 60.18 (f)(3) through (6)

By using this template the applicant is requesting a permit shield from the requirements of 40 CFR 60.18, except sections 60.18(f)(3) through (6), in template permit condition #15.

District Rule 1080

A permit shield will be granted for SJVUAPCD District Rule 1080 because units qualifying to use this template are not subject to any CEM requirements. A permit shield is granted from this requirement in template permit condition #16.

District Rule 1081

A permit shield will be granted for SJVUAPCD District Rule 1081 because units qualifying to use this template are subject only to visible emissions monitoring. Rule 1081 describes procedures for isokinetic source sampling. As a result, units qualifying to use this template are exempt from the procedures described in Rule 1081. A permit shield is granted from this requirement in template permit condition #16.

District Rule 4101

A permit shield will be granted for SJVUAPCD District Rule 4101 because this rule is applicable to a source operation only. The District defines source operation as “the last operation preceding the emission of any air contaminant, which... is not an air pollution abatement operation...” Since units qualifying to use this template are flares used for VOC control, and are therefore an abatement operation, District Rule 4101 is not applicable to any unit using this template. A permit shield is granted from this requirement in template permit condition #16.

District Rule 4201

A permit shield will be granted for SJVUAPCD District Rule 4201 because this rule is applicable to a source operation only. The District defines source operation as “the last operation preceding the emission of any air contaminant, which... is not an air pollution abatement operation...” Since units qualifying to use this template are flares used for VOC control, and are therefore an abatement operation, District Rule 4101 is not applicable to any unit using this template. A permit shield is granted from this requirement in template permit condition #16.

District Rule 4301

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A permit shield will be granted for SJVUAPCD District Rule 4301 because this Rule defines fuel burning equipment as any furnace, boiler, or apparatus used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer. Units qualified to use this template do not meet the definition of fuel burning equipment as defined in Rule 4301. A permit shield is granted from this requirement in template permit condition #16.VI. **Permit Conditions**

The following conditions will be incorporated into the Title V permit of any facility choosing to make use of template #SJV-FL-1-0:

1. Flares shall be designed for and operated with no visible emissions, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. [40CFR 60.18(c)(1)]
2. Demonstration of compliance with the visible emissions limit of this permit shall be conducted at least annually, using EPA Method 22. The observation period shall be 2 hours. [40CFR 60.18(f)(1)]
3. A trained observer, as defined in EPA Method 22, shall check visible emissions at least once every two weeks for a period of 15 minutes. If visible emissions are detected at any time during this period, the observation period shall be extended to two hours. A record containing the results of these observations shall be maintained, which also includes company name, process unit, observer's name and affiliation, date, estimated wind speed and direction, sky condition, and the observer's location relative to the source and sun. [District Rule 2520, 9.4.2]
4. The operator shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 2520, 9.5.2]
5. The flare shall be operated according to the manufacturer's specifications, a copy of which shall be maintained on site. [District Rule 2520, 9.4.2]
6. Actual flare emissions shall not exceed 20 tons VOC/year. Process information, including fuel usage data for the flare and process rates for operations controlled by the flare, shall be submitted to the District annually to demonstrate compliance with this requirement. [District Rule 2520, 9.4.2]
7. Flares shall only be used with the net heating value of the gas being combusted being 200 Btu/scf or greater if the flare is non-assisted; or with the

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- net heating value of the gas being combusted being 300 Btu/scf or greater if the flare is air-assisted or steam-assisted. [40 CFR 60.18 (c)(3)]
8. The net heating value of the gas being combusted in a flare shall be calculated annually, pursuant to 40 CFR 60.18(f)(3) and using EPA Method 18, ASTM D1946-77, and ASTM D2382-76. [40 CFR 60.18 (f)(3-6)]
 9. Air-assisted flares shall be operated with an exit velocity less than V_{max} , as determined by the equation specified in paragraph 40 CFR 60.18 (f)(6). [40 CFR 60.18 (c)(5)]
 10. Nonassisted and steam-assisted flares shall be operated with an exit velocity, as determined by the methods specified in 40 CFR 60.18 (f)(4), less than 60 ft/sec, except as provided in 40 CFR 60.18 (c)(4)(ii) and (iii). [40 CFR 60.18 (c)(4)(i)]
 11. Nonassisted and steam-assisted flares may be operated with an exit velocity, as determined by the methods specified in 40 CFR 60.18 (f)(4), equal to or greater than 60 ft/sec, but less than 400 ft/sec if the net heating value of the gas being combusted is greater than 1,000 Btu/scf. [40 CFR 60.18 (c)(4)(ii)]
 12. Nonassisted and steam-assisted flares may be operated with an exit velocity, as determined by the methods specified in 40 CFR 60.18 (f)(4), less than the velocity, V_{max} , as determined by the equation specified in paragraph 40 CFR 60.18 (f)(5), and less than 400 ft/sec. [40 CFR 60.18 (c)(4)(iii)]
 13. The actual exit velocity of a flare shall be determined by dividing the volumetric flowrate (in units of standard temperature and pressure), as determined by Reference Methods 2, 2A, 2C, or 2D as appropriate; by the unobstructed (free) cross sectional area of the flare tip. [40 CFR 60.18 (f)(4)]
 14. Flares shall be operated with a flame present at all times, and kept in operation when emissions may be vented to them. The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame. [40 CFR 60.18 (c)(2), 60.18 (e), and 60.18 (f)(2)]
 15. Compliance with the permit conditions in the Title V permit shall be deemed compliance with the requirements of 40 CFR 60, section 60.18, (except for sections 60.18(f)(3) through (6)). A permit shield is granted from these requirements except for sections 60.18(f)(3) through (6). [District Rule 2520, 13.2]

16. The requirements of SJVUAPCD District Rules 1080 (Amended December 17, 1992), 1081 (Amended December 16, 1993), 4101 (Amended December 17, 1992), 4201 (Amended December 17, 1992), and 4301 (Amended December 17, 1992) do not apply to this source. A permit shield is granted from these requirements. [District Rule 2520, 13.2]

APPENDIX A

EPA COMMENTS / DISTRICT RESPONSE FOR TEMPLATE #SJV-FL-1-0

EPA COMMENTS / DISTRICT RESPONSE

The EPA's comments regarding flare template SJV-FL-1-0 are encapsulated below followed by the District's response. A copy of the EPA's 4/4/97 letter is available at the District. This template is designed for open flares used to comply with NSPS Volatile Organic Compound (VOC) control requirements.

General Comments:

1. EPA COMMENT

As noted in our comments on previously submitted templates, the District should add a condition to the top of the Permit Condition section to clarify that the definition in any District Rule or federal regulation cited for each permit condition shall apply to that condition.

DISTRICT RESPONSE

This comment was also made by EPA in response to the tank templates. The District has not changed its opinion that the definitions in the rules are sufficient, as they were considered in previously approved templates. However, as noted in the District response to EPA comments on tank templates, a condition has been added to the umbrella template (SJV-UM-0-0) stating that all terms are used as defined in the cited underlying requirement unless otherwise explicitly defined within a particular permit condition.

2. EPA COMMENT

The compliance certification language on the Template Qualification Form must be made consistent with part 70 requirements.

DISTRICT RESPONSE

The compliance certification language will be modified to state, "Based on information and belief formed after reasonable inquiry: 1) the information on this form is true, accurate, and complete, and 2) the facility is in compliance with this template's permit conditions...."

Template Specific Comments:

3. EPA COMMENT

To be consistent with 40 CFR 60.18, the cover sheet of the template should refer to non-assisted, not "unassisted" flares.

DISTRICT RESPONSE

For consistency with 40 CFR 60.18, the reference to “unassisted” flares has been changed to “nonassisted” on the cover page, template applicability, and permit condition sections of this template. However, please note the meaning of these two adjectives, nonassisted and unassisted, is the same. Also note in order to be consistent with the spelling in NSPS §60.18, the District has not hyphenated the word “nonassisted” as you have suggested.

4. EPA COMMENT

To be consistent with 40 CFR 60.18, the first sentence in the paragraph of Section II, Template Applicability, should refer to non-assisted, not “unassisted” flares

DISTRICT RESPONSE

See District response to EPA comment #3.

5. EPA COMMENT

The second paragraph below Table 1 in section III, Applicable Requirements, is missing language the District uses in other templates. Please revise this paragraph to read, “Category “B” rules contain federally enforceable requirements (aside from those listed as Category A) that were not addressed in this template. These may not be all of the federally enforceable requirements for this unit. Requirements from these rules, if applicable, must be addressed by the applicant outside of this template....”

DISTRICT RESPONSE

This additional language has been added to section III, Template Applicability, to be clear and consistent with other templates.

6. EPA COMMENT

The last sentence in the third paragraph below Table 1 of section III, Applicable Requirements, should read, “An explanation of the determination of non-applicability of Category “C” rules is included in section V, “Permit Shield.”

DISTRICT RESPONSE

To be consistent with other templates, the last sentence in the third paragraph has been amended as suggested.

7. EPA COMMENT

To be consistent with the language in 40 CFR 60.18(c)(1), the first sentence in the first paragraph under the 40 CFR 60 Subpart A heading in Section IV, Compliance, should be amended as follows: “... except for periods of not to exceed 5 minutes during any 2 consecutive hours.”

DISTRICT RESPONSE

The District has been consistent in this template and in earlier approved templates in its practice to paraphrase CFR language in section IV, Compliance. Specific CFR language has consistently been included in section VI, Permit Conditions, where appropriate and necessary. However to improve readability this sentence has been modified as requested.

8. EPA COMMENT

The sentence above the flare table in section IV, Compliance, is incomplete. It appears the District intended to but did not cite applicable sub-sections of §60.18.

DISTRICT RESPONSE

This sentence has been amended to read, "Section (c)(4)(i-iii) requires the flare gas exit velocity to conform to the following limits...."

9. EPA COMMENT

The flare table in section IV, Compliance, does not quite reflect NSPS regulations. The category in the table for air-assisted flares with a minimum combusted gas net heating value (NHV) of 1,000 Btu/scf should be deleted from the table and all values under the heading Max. Exit Velocity should be preceded by "less than" (<) symbols.

DISTRICT RESPONSE

These changes have been made to the flare table, to reflect NSPS regulations of §60.18.

10. EPA COMMENT

The second sentence of the last paragraph in section IV, Compliance, should read: "Flares shall be operated with a flame present at all times."

DISTRICT RESPONSE

See the District response to EPA comment #7. However, to improve readability and clarity, the first and second sentences of this paragraph have been combined as follows: "These sections of Subpart A require that flares be operated with a flame present at all times when emissions may be vented to them."

11. EPA COMMENT

The permit shield from District Rule 1080 is found in condition 12, not 9. Please correct this cite in section V, Permit Shield.

DISTRICT RESPONSE

After adding additional conditions to this template to address EPA comments with which the District agrees, the location of the permit shield from District Rule 1080

has been changed to condition #13. The cite in section V, Permit Shield, has been corrected to reflect this.

12. EPA COMMENT

The District needs to provide clarification that flares using this template will consist of open flares only in order for the permit shield from requirements of District Rule 1080 and 1081 to be appropriate. The reason for this is our understanding that while an approved source testing method is not yet available for open flares, the technology does exist to source test “enclosed” flares.

DISTRICT RESPONSE

The District has determined the majority, if not all of the flares in the District for which this template was created are open flares. We have changed applicability of this template to open flares. Therefore, the permit shields referenced are appropriate.

13. EPA COMMENT

The first sentence of the paragraphs on District Rule 4101 and 4201 in section V, Permit Shield, contains the same typographical error: “A permit shield will be granted....”.

DISTRICT RESPONSE

The word “be” has been inserted into these sentences.

14. EPA COMMENT

To be consistent with §60.18, the first question on the Template Qualification Form should refer to non-assisted instead of “unassisted” flares.

DISTRICT RESPONSE

See District response to EPA comment #3.

Comments on Template Conditions:

15. EPA COMMENT

In its current form the template lacks sufficient periodic monitoring to assure compliance with §60.18. Before issuing the template, the District must add conditions that guarantee the source will comply with both the NSPS and the periodic monitoring requirements of District Rule 2520, 9.4.2. Specifically, EPA believes the annual demonstration of compliance with §60.18 visible emissions requirements proposed in condition 2 does not assure compliance. As part of the effort to ensure the flares are properly designed and operated, the District should also include permit conditions that will assure compliance with combusted gas net heating values and exit velocities.

DISTRICT RESPONSE

The District has had several telephone conferences with EPA regarding this comment. During these discussions, EPA proposed specific terms for additional visible emission monitoring to which the District has agreed. EPA also requested that conditions insuring proper flare operation and specific operating temperature ranges, be included to ensure appropriate VOC control. The District response was that NSPS, subpart 60.18 has no specific VOC emission requirements and VOC emissions from individual flares in the District which would be using this template are fairly insignificant, typically less than 10 tons per year. In addition, conditions to insure proper operation and temperature range for VOC control would be source specific and therefore not possible to incorporate into this template. In lieu of adding conditions to insure proper flare operation with regards to VOC control, the District agreed to limit the applicability of this template to flares with actual emissions less than 20 tons VOC/year.

In response to these comments from EPA, the District has added the following conditions to the template:

- A trained observer, as defined in EPA Method 22, shall check visible emissions at least once every two weeks for a period of 15 minutes. If visible emissions are detected at any time during this period, the observation period shall be extended to two hours. A record containing the results of these observations shall be maintained, which also includes company name, process unit, observer's name and affiliation, date, estimated wind speed and direction, sky condition, and the observer's location relative to the source and sun. [District Rule 2520, 9.4.2]
- The flare shall be operated according to the manufacturer's specifications, a copy of which shall be maintained on site. [District Rule 2520, 9.4.2]
- Actual flare emissions shall not exceed 20 tons VOC/year. Process information as requested by District emissions inventory survey shall be submitted to determine compliance with this limit. [District Rule 2520, 9.4.2]

16. EPA COMMENT

Condition 5 omits some of the language that appears in §60.18: "Air-assisted flares shall be designed and operated with an exit velocity less than the velocity, V_{max} , as determined by..."

DISTRICT RESPONSE

Conditions of this template require the actual exit velocity of a flare be determined according to procedures in §60.18 and that flare be operated so that the exit velocity meet specified limits. The District maintains if a flare can be operated in a

manner to meet these limits, it has been designed to do so and that it is unnecessary to include the words “designed and” in this condition. The words “less than” have been added to this condition, as follows: “Air-assisted flares shall be operated with an exit velocity less than V_{max} ...”

17. EPA COMMENT

Condition 6 has repeated an error contained in 40 CFR. The correct reference is 40 CFR 60.18(c)(4)(ii), not 40 CFR 60.18(b)(4)(ii).

DISTRICT RESPONSE

The reference in this condition has been corrected to 40 CFR 60.18(c)(4)(ii).

18. EPA COMMENT

Condition 7 omits some of the language that appears in §60.18: “Non-assisted and steam-assisted flares shall be designed for and operated with an exit velocity....”

DISTRICT RESPONSE

See District Response to EPA Comment 16.

19. EPA COMMENT

Condition 9 contains an incorrect citation. The cite should be 60.18(f)(4).

DISTRICT RESPONSE

The citation in this condition has been corrected.

20. EPA COMMENT

Condition 12 may need to be modified, depending on the District’s clarification of the flare types qualifying to use this template. If they include enclosed flares, the shield for Rules 1080 and 1081 will have to be removed from the condition.

DISTRICT RESPONSE

As discussed in the District Response to EPA comment #12, applicability of this template has been restricted to open flares and therefore the permit shield for District Rule 1080 and 1081 in this condition is valid and appropriate.

APPENDIX B

TEMPLATE QUALIFICATION FORM
FOR
TEMPLATE #SJV-FL-1-0

TEMPLATE SJV-FL-1-0

Title V General Permit Template Qualification Form

District permit # _____

Please answer the questions in the table below. A flare (unit) which meets the criteria of this table is qualified to use this template as part of a Title V application. To use this template, remove this sheet and attach to application.

Yes	No	Description of Qualifying Units
		Is the unit a nonassisted, air-assisted, or steam-assisted elevated open flare? [40CFR§60.18] If “no”, STOP - you cannot use this template; otherwise, continue to next question.
		Are actual emissions from this flare less than 20 tons VOC per year? If “no”, STOP - you cannot use this template; otherwise, continue to next question.
		Is the unit used to comply with the VOC control requirements of petroleum liquid storage tanks, loading racks, or gas plant fugitive VOC equipment leaks; and the emission unit is subject to an NSPS that requires the use of a VOC control device? If “no”, STOP - you cannot use this template; otherwise, you may use this template.

Based on information and belief formed after reasonable inquiry: 1) the information on this form is true, accurate, and complete, and 2) the facility is in compliance with this template’s permit conditions:

Signature of Responsible Official

Date

Name of Responsible Official (Please print)